520.43072X00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: K. MOGI, et al

Serial No.: 10/647,261

Filed: August 26, 2003

For: DATA PREFETCHING METHOD

PETITION TO MAKE SPECIAL
UNDER 37 CFR 1.102(d) and MPEP. §708.02, VIII

MS Petition
Commissioner for Patents   September 14, 2004
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

1. Petition

Applicants hereby petition to make this application **Special**, in accordance with 37 CFR §1.102(d) and MPEP 708.02, VIII. The present invention is a new application filed in the United States Patent and Trademark Office on August 26, 2003 and as such has not received any examination by the Examiner.

2. Claims

Applicants hereby represent that all the claims in the present application are directed to a single invention. If upon examination it is determined that all the claims presented are not directed to a single invention, Applicants will make an election without traverse as a prerequisite to the granting of special status.

-1-

3. Search

Applicants hereby submit that a pre-examination search, a copy of which is attached, has been made by a professional searcher.

The field of search covered Class 707, subclasses 3, 4, 5, 6 and 10 and Class 711, subclasses 100, 111, 112, 113 and 114. Additionally, a computer database search was conducted on the USPTO systems EAST and WEST.

The above subclasses represent areas deemed to contain subject matter of interest to one or more of the search features. Please note that relevant references may be classified outside of these areas. The integrity of the search is based on the records as presented to us by the United States Patent and Trademark Office (USPTO). No further integrity studies were performed.

4. Copy of References

A listing of all references found by the professional searcher is provided by a Form PTO-1449 and copies of the references and the Form PTO-1449 are submitted as part of an Information Disclosure Statement (IDS) filed on even date.

5. Detailed Discussion of the References and Distinctions Between the References and the Claims

Below is a discussion of the references uncovered by the search and cited in the IDS filed on even date that appear to be most closely related to the subject matter encompassed by the claims of the present application, and which discussion particularly points out how Applicants' claimed subject matter is distinguishable over those references. All other references uncovered by the search and cited in the IDS filed on even date are **not** treated in detail herein.

-2-

a. Detailed Discussion of the References

Mogi et al (U.S. Patent Application No. 2003/0093647) shows as per Figs. 1, 13 and 14 a storage system 10 which upon receipt of query plan information 880 from a query plan acquisitory program 120 determines prefetchable areas and sets required information in the DBMS execution information 38, allocates the amount of prefetch cache 28 needed and executes a data prefetch operation. See paragraphs 19-24, 78 and 122-167 Summary, sections, 21, 78 and Figs. 1, 13 and 14.

Bonner et al (U.S. Patent No. 6,606,617) shows as per Figs. 1 and 2 an optimized technique for prefetching LOB table space pages with RDBMS software, the SQL statements, and the instructions derived therefrom, may be loaded from the data storage devices 104 and 106 into a memory of the computer system 102 for use during the prefetching operations. See col. 2, lines 5-64, col. 4, lines 64-col. 5, line 35, col. 4, lines 31-45 and Figs. 1 and 2.

Snodgrass et al (U.S. Patent Application Publication No. 2004/0117359) shows as illustrated in fig. 1-4 a database application for processing temporal user queries having a user application layer, a middleware layer and a DBMS layer an adaptable query optimization and evaluation in temporal middleware in a mapping of temporal SQL statements to conventional SQL parts, performs query optimization and some processing. See Abstract and paragraphs 7-23 and 24-39 and Figs. 1-4.

Idei et al (U.S. Patent Application Publication No. 2004/0117398) shows in Figs. 1 and 8-14 a prefetch applicance server in which a DB is built in a virtualization environment, instructs to read into caches of storage devices data to be accessed in

-3-

the near future based on the prediction results. See Abstract and paragraphs 15-48 and 668-128.

b. Distinctions Between the References and the Claims

The present invention as recited in the claims is not taught or suggested by any of the above noted references whether taken individually or in combination with each other or in combination with any of the other references now of record.

The present invention as now recited in the claims is directed to a data prefetching method for use in a computer system including a first computer which is operated by a database management system, a storage device including cache memory wherein the storage device is connected to the first computer and stores data of a database managed by the database management system and a second computer connected to the first computer which uses data of the database. According to the present invention, a processing content which satisfies given conditions is sampled from a content of processing which is executed by the database management system, a data prefetching method is determined based upon the sampled content, prefetching of data based on the data prefetching method is instructed to the storage device when the content of the processing is executed, and completion of the data prefetching to the storage device is instructed when the execution of the content of the processing is completed.

The above described features of the present invention are not taught by any of the above described references or any of the other references of record whether taken individually or in combination with each other.

For example, the above described features of the present invention are not

taught or suggested by Mogi. As per the above, Mogi teaches a storage system which upon receipt of query plan information from a query plan acquisition program determines prefetchable areas and sets required information in the DBMS execution information, allocates the amount of prefetch cache needed, and executes a data prefetch operation. The present invention as recited in the claims differs from that taught by Mogi being that the present invention as recited in the claims samples a processing content which satisfies given conditions from a content of processing which is executed by the database management system, determines a prefetching method based on the sampled content and instructs prefetching of data based on the determined prefetching method to the storage device when the content of the processing is executed. These features are clearly not taught or suggested by Mogi.

The above described deficiencies of Mogi are also evident in each of the other above described references and the other references of record. Therefore, the teachings of any of the above described references and the other references of record whether taken individually or in combination with each other still fails to teach or suggest the features of the present invention as recited in the claims.

6.   Fee (37 C.F.R. 1.17(i))

The fee required by 37 C.F.R. § 1.17(i) is to be paid by:

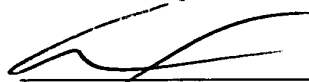[X]   the Credit Card Payment Form (attached) for $130.00.

[   ]   charging Account _____ the sum of $130.00.

A duplicate of this petition is attached.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (520.43072X00).

Respectfully submitted,

Antonelli, Terry, Stout & Kraus, LLP

Carl J. Brundidge
Registration No. 29,621

CIB/jdc
Enclosures

520.43072X00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: K. MOGI, et al

Serial No.: 10/647,261

Filed: August 26, 2003

For: DATA PREFETCHING METHOD

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §1.97 & 1.98

MS Amendment
Commissioner for Patents   September 14, 2004
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In the matter of the above-identified application, applicants are submitting herewith copies of the documents listed in the attached form equivalent to Form PTO-1449 for the Examiner's consideration.
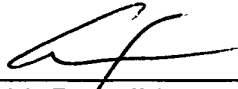
This information disclosure statement is being submitted before the mailing date of a first office action on the merits.

Each of the documents listed on the attached form equivalent to Form PTO-1449 is in the English language.

It is respectfully requested that this information disclosure statement be considered by the Examiner.

1

Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus Deposit Account No. 01-2135 (520.43072X00) please credit any excess fees to such deposit account.

Respectfully submitted,

CIB/jdc
(703) 312-6600

Carl I. Brandidge
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ANTONELLI, TERRY, STOUT & KRAUS, LLP

FORM PTO-1449 U.S. Department of Commerce (Rev. 4/92) Patent and Trademark Office

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use several sheets if necessary)

| ATTY. DOCKET NO.

520.43072X00 | SERIAL NO.

10/647,261 |
| --- | --- |
| APPLICANT

K. MOGI, et al | |
| FILING DATE

August 26, 2003 | GROUP |

SEP 14 2004 — OIPE

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER							DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		5	7	9	9	3	0	9	8/98	Srinivasan			
		5	8	9	7	6	3	4	4/99	Attaluri et al			
		6	0	6	5	0	1	3	5/00	Fuh et al			
		6	5	3	9	3	8	2	3/03	Byrne et al			
		6	6	0	6	6	1	7	8/03	Bonner et al			
		6	7	2	8	7	2	6	4/04	Bernstein et al			
	2002	0	0	3	8	3	1	3	3/02	Klein et al			
	2002	0	1	9	4	1	5	5	12/02	Aldridge et al			
	2003	0	0	9	3	4	4	2	5/03	Mogi et al			
	2003	0	0	9	3	6	4	7	5/03	Mogi et al			
	2003	0	1	9	5	9	4	0	10/03	Basu et al			

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

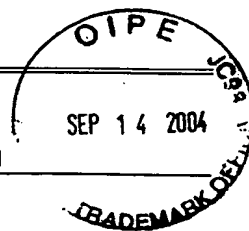| EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation is considered, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Form PTO-1449 [6-4])

3

FORM PTO-1449 U.S. Department of Commerce (Rev. 4/92) Patent and Trademark Office	ATTY. DOCKET NO. 520.43072X00	SERIAL NO. 10/647,261 SEP 1 4 2004
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)	APPLICANT K. MOGI, et al	
	FILING DATE **August 26, 2003**	GROUP

OIPE

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER							DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	2 0 0 4	0	1	1	7	3	5	9	6/04	Snodgrass et al			
	2 0 0 4	0	1	1	7	3	9	8	6/04	Idei et al			
	2 0 0 4	0	2	0	0	2	8	2	10/03	Arnold et al			
	2 0 0 3	0	2	2	0	9	4	1	11/03	Arnold et al			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER							DATE	COUNTRY	CLASS	SUBCLASS	ABSTRACT	
													YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation is considered, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.
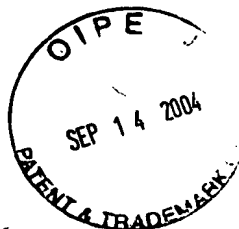
(Form PTO-1449 [6-4])

4

K&A

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July 12, 2004

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RE: Petition-To-Make Special Search
For: **DATA PREFETCHING METHOD**
U.S. APPLICATION NO. 10/647261
Your Ref. No.: 340300596US01
<u>Our Ref. No.: HIT 1084</u>

Dear Mr. Otsuka:

We have completed the petition-to-make special search at the U.S. Patent and Trademark Office regarding the above-identified invention. The field of search covered Class 707, subclasses 3, 4, 5, 6 and 10 and Class 711, subclasses 100, 111, 112, 113 and 114. Additionally, a computer database search was conducted on the USPTO systems EAST and WEST. Examiner Kevin Ellis in Class 711 (Art Unit 2188) was consulted in confirming the field of search.

The search was directed towards a data prefetching method. In particular, the search was directed towards method for enhancing access to a storage device and DBMS with data prefetching using SQL statements that are repeatedly used, and as further claimed and described in the disclosure. Note we limited our search to U.S. patents having a filing date and foreign patents and literature having a publication date prior to August, 26th 2003.

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Please note the enclosed documents listed in numerical order for convenience:

U.S. Patent Number	Inventor(s)
5,799,309	Srinivasan
5,897,634	Attaluri et al.
6,065,013	Fuh et al.
6,539,382	Byrne et al.
6,606,617	Bonner et al.
6,728,726	Bernstein et al.

Published Patent Application	Inventor(s)
20020038313	Klein et al.
20020194155	Aldridge et al.
20030200282	Arnold et al.
20030220941	Arnold et al.
20030093442	Mogi et al.
20030093647	Mogi et al.
20030195940	Basu et al.
~~20030200282~~	~~Arnold et al.~~
20040117359	Snodgrass et al.
20040117398	Idei et al.

Brief Description Of The Documents:

U.S. Patent Application Number 2003/0093647 shows a storage system having means for acquiring execution information of database management system with cache memory control means that executes a data prefetch execution control by using said access prediction means. See summary, sections 21, 73.

U.S. Patent Number 6,606,617 shows an optimized technique for prefetching LOB table space pages with RDBMS software, the SQL statements, and the instructions derived therefrom, may be loaded from the data storage devices 104 and 106 into a memory of the computer system 102 for use during actual operations. See summary, column 4, lines 31-45.

U.S. Patent Application Number 2004/0117359 shows an adaptable query optimization and evaluation in temporal middleware in a DBMS with mapping temporal SQL to conventional SQL, performs query optimization and some processing. See abstract, summary.

U.S. Patent Application Number 2004/0117398 shows a prefetch appliance server in which a DB is built in a virtualization environment, instructs to read into caches of storage devices data to be accessed in the near future based on the prediction results. See abstract, summary.
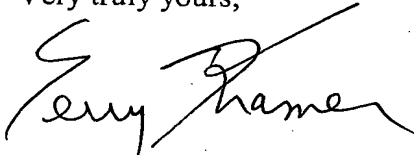
The remaining documents are of general interest for showing prefetching in database management systems.

While the above-noted Examiner was consulted and confirmed our opinion that the most relevant areas for this invention were reviewed, further searching may uncover additional patents. NOTE: The field of search included the most pertinent areas identified by the Examiner and our office as containing relevant patents.

Enclosed are copies of the cited documents and our invoice for services rendered and disbursements for this matter.

As always, if you have any questions regarding this search, please do not hesitate to call us at (703) 413-5000.

Very truly yours,

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TWK:RCP:css
Enclosure

K&A